

sufficient common edge between at least two of the display portions so that the two portions may be moved, or folded, about the common axis.

[0038] In the illustrated embodiment, first portion **41** is coupled with second portion **42** at axis **14**, and with third portion **43** at axis **18**. It should be noted that any respective axis may comprise a hinge or other mechanical joining device. Alternatively, an axis may comprise a portion of a flexible display material which serves as a joining line between the two respective portions and about which the two portions may move. Sixth portion **46** is coupled to fifth portion **45** at axis **16**, and to fourth portion **44** at axis **20**. First portion **41** and sixth portion **46** are coupled at axis **12**. Third portion **43** and fourth portion **44** are coupled at axis **22**. Second portion **42** and fifth portion **45** are coupled. First portion **41** is coupled to third portion **43** at axis **24**. In the case of hinged axes, it may be helpful to have hinges extending only partially along given axes and have the display portions separated from one another near the ends of the axes. This will avoid interference between the ends of two hinges. This may be less of a concern with respect to displays incorporating a flexible display material. Also, it is preferable to have gaps, such as gaps **25** and gap **23**, to accommodate the space taken by the joining devices. Thus, the respective display portions might not have precisely the same dimensions. The size and positioning of joining devices may be varied to accommodate different numbers of display portions, as well as different schemes for the folding and interleaving of display portions in different positions (such as in the closed position).

[0039] In the embodiment illustrated in FIG. 2, a user may first move the set of portions **41**, **42**, **43** relative to the set of portions **44**, **45**, **46**. This may be accomplished by moving the respective sets about axes **12**, **22** and **24**. The user may then move portions **43** and **44** relative to the remaining portions. This movement is about axes **18** and **20**. The user may then move **44** and **45** relative to the remaining portions by moving portions **44** and **45** about axes **14** and **16**. Thus, the display portions may be rotated about the respective axes to a fully-open position, such as that shown for display **210** in FIG. 2. In the fully-open position, it may be appreciated that at least one of the respective axes is not parallel with at least one other axis. Thus, there are at least two axes which are angularly offset from one another. For example, in the fully-open position axis **18** would be perpendicular to axis **22**. It can also be appreciated that in the closed, or partially open, position, two axes which are parallel in the fully-open position may become angularly offset from one another. For example, in the fully-open position axes **18** and **20** are parallel (and coincidental), while in a partially open position, axes **18** and **20** are angularly offset. In a fully-closed position, axes **18** and **20** become parallel once again, but are no longer coincidental.

[0040] It will be appreciated that the movement of portions about axes is different for different display configurations. Depending on the configuration, a given display portion may be moveable about the axis for 360 degrees, or the range of movement may be limited to something less than 360 degrees.

[0041] In the embodiment illustrated in FIG. 2, a given display portion may only display information on one side. That is, a given portion only has a display screen with pixels on one side. In alternative embodiment, however, a display portion may have a display screen or display pixels on both sides. For example, it may be desirable for first portion **41** to have display pixels on both sides. Thus, when the display **10** is in the fully open position, a first side of portion **41** (together

with the other portions **42-45**) may provide a display screen. In the fully-closed position however, the first side of portion **41** will not be viewable. Thus, if additional display pixels are provided on a second side (i.e., the opposing side) of portion **41**, they may be viewable when display **10** is in the fully-closed position. Therefore, a fully-open display **10** might serve as a computer screen, while a fully-closed display **10** might serve as a PDA screen (via second side of portion **41**).

[0042] As mentioned, the display screen may incorporate conventional display screen materials as are found, for example, in laptop computers. Alternatively, a flexible material may be used. In one embodiment, organic light emitting diodes (OLEDs) are used. The OLEDs are disposed on a substrate, which, as noted, may be flexible or rigid. Flexible substrates include plastics, foils and other materials. Any suitable material may be used that provides the desired rigidity or flexibility. Also, while OLEDs are used to produce the images, in other embodiments, the images may be produced by any suitable display technology depending upon the desired optical properties. Certain suitable materials for display screens are described in Published U.S. Patent Application No. 2003/0144034, which is hereby incorporated by reference.

[0043] As previously discussed, the display portions **41-46** may be moved to provide different configurations of display **10**. Thus, display **10** may emulate the display of different types of devices depending upon the relative positions of portions **41-46**. Therefore, depending on the desired configuration, display **10** may emulate any suitable device which uses or incorporates a display such as, without limitation, computers (e.g., desktop or laptop computers), mobile communication devices, phones, personal data assistants (PDAs), televisions, electronic media device (e.g., electronic books, note tablets, etc.), electronic billboards and other advertising devices, televisions, and video recording and display devices.

[0044] FIG. 2 illustrates a fully-opened display **210**. As can be seen display **210** comprises six display portions **241**, **242**, **243**, **244**, **245**, and **246**. Portion **241** is coupled with portion **243** at axis **220**, with portion **242** at axis **216**, and with portion **246** at axis **212**. Portion **243** is also coupled with portion **244** at axis **222**. Portion **242** is also coupled with portion **245** at axis **224**. Portion **246** is also coupled with portion **244** at axis **218** and with portion **245** at axis **214**.

[0045] FIG. 3 illustrates a display **310** incorporating flexible display materials. As can be seen, there are no mechanical joining devices to couple the respective display portions. Rather, a pair of display portions is joined at a coupling portion of the flexible material which provides a spine, or joining line, such as spine **316**. Spine **316** may comprise a memory line, so that repeated movements of the two respective portions about the shared axis always occur about the same spine.

[0046] FIGS. 4-10 illustrate various other configurations of multi-portion displays. FIG. 4 illustrates a display **410** which may have substantially the same overall dimensions as display **210**, for example. However, display **10** comprises only three portions coupled at two axes. First and second portions **411**, **412** are coupled at axis **414**. Second and third portions **412**, **413** are coupled at axis **415**.

[0047] FIG. 5 illustrates a display **420** having five portions coupled at two axes. Third portion **423** is coupled to both first and second portions **421**, **422** at first axis **427**. Third portion **423** is also coupled to both fourth and fifth portions **424**, **425** at second axis **428**. Line **426** represents separation between